



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/781,481	02/18/2004	Kie Jin Lee	930077-2006	3113
20999	7590	10/19/2005	EXAMINER	
FROMMER LAWRENCE & HAUG 745 FIFTH AVENUE- 10TH FL. NEW YORK, NY 10151				KO, TONY
ART UNIT		PAPER NUMBER		
		2878		

DATE MAILED: 10/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/781,481	LEE ET AL. <i>hml</i>
	Examiner Tony Ko	Art Unit 2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_ is/are allowed.
- 6) Claim(s) 1-16 is/are rejected.
- 7) Claim(s) \_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____.
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date ____.	6) <input type="checkbox"/> Other: ____.

This office action is in response to Amendment filed on 8/15/05.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3-7, 9-12, 14, and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Anlage (U.S. Patent 6,809,533).

Regarding claim 1, 3-7, 9-12, 14, and 16, Anlage discloses (Figs. 1 and 2) a nearfield microscope comprising: a wave source (165) with a variable frequency; a waveguide resonator (190) through which the wave emitted from the wave source propagates; a probe (130), which perforates an outer wall of the waveguide resonator and by which the wave that propagates through the waveguide resonator interacts with a sample (125); and a detector (155), which detects the wave that has interacted with the sample. Anlage also discloses a portion of the probe inside the waveguide resonator has a linear shape and a loop shape (a rectangle shape). Anlage also discloses the probe is formed of metal, a dielectric material, or a magnetic substance (coaxial). Anlage discloses the invention set forth above. Anlage's invention under normal operation would satisfy the equation in claim 7 hence claim 7 is rejected. Anlage also discloses a slit is formed in the waveguide resonator, and the probe is movable along the slit. Anlage discloses the invention set forth above. Anlage's invention under

normal operation would satisfy equation in claim 10 and a wave with a frequency greater than the cut-off frequency is used. Anlage also discloses the near field microscope when a resonance frequency and a volume before the probe is inserted into the waveguide resonator are  $f_{\text{sub}0}$  and  $v_{\text{sub}0}$ , respectively, and a change in volume of the probe after the probe is inserted into the waveguide resonator is  $\Delta v$ , a change in resonance frequency  $f$  of the waveguide resonator is given by:  $(f-f_0)/f_0 = -2\Delta v/v_0$ . Anlage also discloses the probe is a hybrid probe manufactured using partial two-step etching. Anlage discloses the wave source emits microwaves or millimeter-waves. Anlage also discloses the probe portion having the loop shape is disposed parallel to an advancing direction of the wave.

#### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anlage in view of Davidov (U.S. Patent 5,781,018).

4. Anlage also the invention set forth above, Anlage does not disclose a tuner which is movably connected to one end of the waveguide resonator and adjusts a length of the waveguide resonator. Davido discloses a tuner (64), which is movably connected to

one end of the waveguide resonator and adjusts a length of the waveguide resonator. It would have been obvious to a person of ordinary skill in the art at the time of the invention to attach a tuner on the resonator to accurately adjust for the signal frequency.

5. Claims 8 and 15 are rejected under 35 U.S.C 103(a) as being unpatentable over Anlage.

6. Regarding claim 8, Anlage discloses the invention set forth above, Anlage does not disclose the probe is disposed in a position that satisfies  $Z_f = 3d/2p$ ,  $Z_i=d/(2*p)$ . It is design choice to place the probe in a position that satisfies  $Z_f = 3d/2p$ ,  $Z_i=d/(2*p)$ . It would have been obvious to a person of ordinary skill in the art at the time of the invention to place the probe in a position that satisfies  $Z_f = 3d/2p$ ,  $Z_i=d/(2*p)$  to achieve desired electromotive force.

7. Regarding claim 15, Anlage discloses the invention set forth above, Anlage does not disclose the wave emitted from the wave source is  $\lambda$ , the length of the waveguide resonator changes by  $\lambda/4$  increments. It is design choice to change the length by  $\lambda/4$ . It would have been obvious to a person of ordinary skill in the art at the time of the invention to change the length of the waveguide by  $\lambda/4$  increment to efficiently find the desired length which would result in best signal strength.

8. Claims 13 is rejected under 35 U.S.C 103(a) as being unpatentable over Anlage in view of Anlage (U.S. Patent 5,900,618), here in after, Anlage '618.

9. Regarding claim 13, Anlage discloses the invention set forth above. Anlage does not disclose a lock-in amplifier, which minimizes noise by improving a signal-to-noise ratio between the wave source and the waveguide resonator. Anlage 618' discloses in

a lock-in amplifier (603) which minimizes noise by improving a signal to noise ratio between the wave source and the waveguide resonator. It would have been obvious to a person of ordinary skill in the art at the time of the invention to place a lock-in amplifier, which minimizes noise by improving a signal-to-noise ratio between the wave source and the waveguide resonator to improve signal quality.

***Response to Arguments***

10. Applicant's arguments filed 8/15/05 have been fully considered but they are not persuasive. Applicant states Anlage is similar to the prior art disclosed by the applicant, and Davidov discloses probe that is different from applicant's invention. Base on these reasons, applicant concluded that claim is believed to be patentable. However, Applicant's assertion is so general, that it is unclear what is specifically not disclosed by the prior art.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Ko whose telephone number is 571-272-1926. The examiner can normally be reached on Monday-Friday 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TKO



THANH X. LUU  
PATENT EXAMINER